

Docket No.: K-0039




PATENT

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF APPEALS AND INTERFERENCES**

In re Application of

Confirmation No.: 5887

Byung Keun LIM

Group Art Unit: 2662

Serial No.: 09/189,793

Examiner: Ahmed Elallam

Filed: 11/12/1998

Customer No.: 34610

For: METHOD AND APPARATUS FOR CODE DIVISION DUPLEXING

TRANSMITTAL OF APPEAL BRIEF

U.S. Patent and Trademark Office
Customer Window, Mail Stop Appeal Brief-Patents
Randolph Building
401 Dulany Street
Alexandria, Virginia 22314

Sir:

Submitted herewith is Appellant's Appeal Brief in support of the Notice of Appeal filed May 4, 2006. Enclosed is Check No. 17993 for the Appeal Brief fee of \$500.00.

To the extent necessary, a petition for an extension of time under 37 C.F.R. 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account 16-0607 and please credit any excess fees to such deposit account.

Respectfully submitted,
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Date: July 5, 2006



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APPEAL BRIEF

U.S. Patent and Trademark Office
Customer Window, Mail Stop Appeal Brief-Patents
Randolph Building
401 Dulany Street
Alexandria, Virginia 223134

Sir:

This appeal is taken from the rejection of claims as set forth in the Office Action of February 6, 2006 (hereafter the Office Action). In accordance with 37 C.F.R. §41.37, applicant addresses the following items.

REAL PARTY IN INTEREST

The real party in interest is the assignee, LG Electronics Inc. The assignment document is recorded beginning at Reel 09582 and Frame 0886.

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RELATED APPEALS AND INTERFERENCES

There are no known related appeals and/or interferences.

STATUS OF THE CLAIMS

This is an appeal from the final rejection dated February 6, 2006 of claims 30-32, 34-36, 38-40 and 43-47. No other claims are pending.

STATUS OF AMENDMENTS

All Amendments have been entered. A copy of the appealed claims 30-32, 34-36, 38-40 and 43-47 is provided in the attached Claims Appendix.

SUMMARY OF THE CLAIMED SUBJECT MATTER

As stated in 37 C.F.R. §41.37(c)(v), applicant is providing the following explanation of each of the independent claims 30, 34, 38 and 43 involved in this appeal. This explanation refers to the specification and drawings. The following is merely an example summary and is not intended to be a discussion of the full and entire scope of the claims. Other interpretations, configurations and embodiments are also within the scope of the pending claims.

Independent Claim 30

A system is disclosed that includes a plurality of reverse communication channels. For example, see page 5, lines 14-16; and FIG. 4 (codes 1, 3, 5 and 7). The system also includes a

plurality of forward communication channels. For example, see page 5, lines 14-16; and FIG. 4 (codes 2, 4, 6 and 8).

Additionally, each of the plurality of reverse communication channels and each of the plurality of forward communication channels utilize one common frequency. For example, see page 5, lines 1-5 and page 6, lines 4-13.

Still further, each of the plurality of reverse communication channels having a unique code to identify the channel as a reverse communication channel and each of the plurality of forward communication channels having a unique code to identify the channel as a forward communication channel. For example, see page 5, lines 11-13 and page 6, lines 4-13.

Even further, each of the plurality of reverse communication channels and plurality of forward channels carry data simultaneously. For example, see page 6, lines 16-18.

Independent Claim 34

A system is disclosed that includes a transmitter configured to transmit data on a first reverse communication channel and a receiver configured to receive data on a first forward communication channel. For example, see page 5, lines 5-10 and page 5, line 17-page 6, line 13; and FIG. 3.

Additionally, the first reverse communication channel, a second reverse communication channel, the first forward communication channel and a second forward communication channel utilize one frequency channel. For example, see page 5, lines 1-5 and page 6, lines 4-13; and FIG. 4.

Still further, the first reverse communication channel having a first unique code to identify the channel as a reverse communication channel, the second reverse communication channel having a second unique code to identify the channel as a reverse communication channel, the forward communication channel having a third unique code to identify the channel as a forward communication channel and the fourth reverse communication channel having a fourth unique code to identify the channel as a forward communication channel. For example, see page 5, lines 11-13 and page 6, lines 4-13.

Even further, the first reverse communication channel, the second reverse communication channel, the first forward communication channel and the fourth forward communication channel are configured to carry data simultaneously. For example, see page 6, lines 16-18.

Independent Claim 38

A system is disclosed that includes a transmitter configured to transmit data on a plurality of forward communication channels and includes a receiver configured to receive data on a plurality of reverse communication channels. For example, see page 5, lines 5-10 and page 5, line 17-page 6, line 13; and FIG. 3.

Additionally, each of the plurality of reverse communication channels and each of the plurality of forward communication channels utilize one frequency channel. For example, see page 5, lines 1-5 and page 6, lines 4-13.

Still further, each of the plurality of reverse communication channels having a unique code to identify the channel as a reverse communication channel and each of the forward communication channels having a unique code to identify the channel as a forward communication channel. For example, see page 5, lines 11-13 and page 6, lines 4-13.

Even further, the reverse communication channels and the forward communication channels are configured to carry data simultaneously. For example, see page 6, lines 16-18.

Independent Claim 43

An apparatus is provided that includes a transmitter configured to transmit data on a common channel and a receiver configured to receive data on the common channel. For example, see page 5, lines 1-10 and page 5, line 17-page 6, line 13; and FIG. 3.

Additionally, the common channel includes a first reverse communication channel, a second reverse communication channel, a first forward communication channel and a second forward communication channel that utilize one common channel. For example, see page 5, lines 1-5 and page 6, lines 4-13.

Still further, the first reverse communication channel having a first unique code to identify the channel as a reverse communication channel, the second reverse communication channel having a second unique code to identify the channel as a reverse communication channel. The forward communication channel having a third unique code to identify the channel as a forward communication channel and the fourth reverse communication channel having a

fourth unique code to identify the channel as a forward communication channel. For example, see page 5, lines 11-13 and page 6, lines 4-13.

Still further, the first reverse communication channel, the second reverse communication channel, the first forward communication channel and the fourth forward communication channel are configured to carry data simultaneously. For example, see page 6, lines 16-18.

GROUND OF REJECTION TO BE REVIEWED ON APPEAL

Claims 30-32, 34-36, 38-40 and 43-47 stand rejected under 35 U.S.C. §103(a) over U.S. Patent 5,235,615 to Omura in view of U.S. Patent 5,487,083 to Nakajima et al. (hereafter Nakajima).

As discussed below in the section entitled "Argument" applicant has separately made arguments for the claims. Applicant believes that each of the claims stands and falls separately from one another.

ARGUMENT

The present application contains four independent claims, namely independent claims 30, 34, 38 and 43. These claims contain different features as may be evidenced by the specifically claimed features and/or as may be pointed out below. For ease of illustration and discussion, similar types of claims (or claim features) may be discussed with respect to each other. This is not an admission that the claims are the same or that they stand or fall together. Rather, this is

an attempt to narrow the number of issues and to limit the number of arguments. While arguments may be similar for different claims, it should be understood that differently claimed features are expressly used.

Applicant is providing arguments below to show that the applied references do not teach or suggest the claimed features. Each of independent claims 30, 34, 38 and 43 is believed to define patentable subject matter as discussed below. Each of the dependent claims depends from at least one of the independent claims and therefore defines patentable subject matter at least for this additional reason. In addition, the dependent claims recite features that further and independently distinguish over the applied references.

Independent Claim 30

Independent claim 30 recites each of the plurality of reverse communication channels having a unique code to identify the channel as a reverse communication channel and each of the plurality of forward communication channels having a unique code to identify the channel as a forward communication channel.

The Office Action (on page 3, lines 3-6) states that Omura discloses that for a particular two-way communication channel between a particular mobile and the base station, a unique chip codeword used for the base communication signal and the remote communication signal may be the same. See Omura's col. 2, lines 38-63; col. 6, lines 45-46; col. 6, lines 20-27 and col. 2, lines 42-46.

The Office Action (on page 6, lines 3-8) asserts that Omura does not specify that each reverse channel and forward channel have a unique code to identify the channels as a reverse communication channel and a forward communications channel, respectively. The Office Action then states that Nakajima discloses that each communication channel is assigned two spectrum spreading codes which define a pair of forward and reverse channels. The Office Action cites Nakajima's col. 3, lines 63-67 and col. 4, lines 1-11. The Office Action (in the paragraph bridging pages 6-7) states that it would have been obvious to have made the forward and reverse channel of Omura each separated by a unique code taught by Nakajima so as to avoid interference between adjacent radio zones and to increase the capacity.

Applicant respectfully submits that the applied references may be combined as alleged in the Office Action. Furthermore, applicant respectfully submits that the references, even if combined, do not teach or suggest all the features of independent claim 30 (as well as the other independent claims 34, 38 and 43).

More specifically, Omura relates to code division that utilizes a unique code given to each user. The Office Action attempts to modify Omura by applying Nakajima, without any basis in the prior art, in order to show that a reverse channel and a forward channel have separate codes. However, Nakajima only discloses that a communication channel may be assigned two spectrum spreading codes to define a forward channel and to define a reverse channel. This teaching of Nakajima may not be simply modified into Omura. That is, Omura's CDMA system does not suggest a full duplex system such as a CDD system. Nakajima relates to a TDMA type

of system. Therefore, there is no suggestion for modifying Omura's CDMA system to include additional features of Nakajima as alleged. Rather, the only suggestion for the claimed features (and therefore to modify Omura) is provided by applicant's own specification. That is, the Office Action clearly has chosen respective features from different references and combined those references based on applicant's own teaching (and not based on the teachings of the prior art). Applicant respectfully submits that there is no suggestion in the known prior art to modify Omura's CDMA system so as to include unique codes being assigned to reverse and forward channels as recited in independent claim 1. Applicant respectfully submits that the combination based on Omura and Nakajima should be withdrawn at least for this reason.

Furthermore, even if combined, the combination of Omura and Nakajima still does not teach or suggest all of the features of independent claim 30. That is, the Office Action states that Omura does not specify that each reverse channel and forward channel have a unique code to identify the channels as a reverse communication channel and a forward communication channel. At best, Nakajima merely discloses that each channel is assigned two codes to define a forward and a reverse channel. However, Nakajima does not relate to a plurality of reverse communication channels and a plurality of forward communication channels that utilize one common frequency (as recited in independent claim 30) and that each of the reverse communication channels having a unique code to identify the channel as a reverse communication channel and each of the plurality of forward communication channels having a unique code to identify the channel as a forward communication channel. Independent claim 30

specifically relates to a plurality of forward and reverse channels that utilize one common frequency. These claimed features may not be ignored. The Office Action does not appear to specifically address this feature when discussing features of Nakajima. Nakajima clearly does not disclose a plurality of forward communication channels and a plurality of reverse communication channels where each of the reverse communication channels has a unique code and each of the plurality of forward communication channels has a unique code. At best, Nakajima only discloses two spectrum spreading codes for a channel.

The Office Action (on pages 8-10) appears to cite Nakajima's col. 3, line 59-col. 4, line 13 for several features. However, this cited section includes Nakajima's indication that two codes are assigned for each channel. See col. 4, lines 8-13. This express teaching may not be ignored.

Furthermore, there is no suggestion to further modify Nakajima (and Omura) so as to include these missing features of independent claim 30. That is, there is no suggestion to modify Nakajima so as to include a plurality of forward channels and a plurality of reverse channels (that utilize one common frequency). The Office Action appears to rely on applicant's own specification when determining "how and why" to combine the two references. That is, there is no suggestion in the prior art for these additional features that are not shown in Nakajima and/or Omura.

As is clearly stated in the MPEP, three basic criteria must be met to establish a *prima facie* case of obviousness. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify

the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Third, the prior art reference (or references when combined) must teach or suggest all the claim limitations. See MPEP §2143, for example. As described above, the Office Action has not met each of the three criteria. Even more specifically, the Office Action does not provide a reference that suggests “each of the plurality of reverse communication channels having a unique code to identify the channel as a reverse communication channel and each of the plurality of forward communication channels having a unique code to identify the channel as a forward communication channel.”

For at least the reasons set forth above, the Office Action fails to make a *prima facie* case of obviousness. Additionally, the applied references do not teach or suggest all the claimed features. Thus, independent claim 30 defines patentable subject matter.

Dependent Claim 31

Dependent claim 31 depends from independent claim 30 and therefore defines patentable subject matter at least for this reason. However, dependent claim 31 contains additional features such that dependent claim 31 does not stand or fall together with independent claim 30. For example, dependent claim 31 recites that each unique code is one of a plurality of mutually orthogonal codes.

The Office Action appears to cite Omura’s col. 6, lines 28-51 for these features. However, when discussing base independent claim 30, the Office Action relies on Nakajima for features relating to unique codes for each of the reverse and forward channels. Neither Omura

nor Nakajima relates to unique codes for each of a plurality of reverse channels and each of a plurality of forward channels of a common frequency. Accordingly, the Office Action's citation to Omura does not suggest the features of dependent claim 31. There is no suggestion for these features of dependent claim 31 either alone or in combination with the other features of independent claim 30. Thus, dependent claim 31 defines patentable subject matter at least for this additional reason.

Dependent Claim 32

Dependent claim 32 depends from independent claim 30 and therefore defines patentable subject matter at least for this reason. However, dependent claim 32 contains additional features such that dependent claim 32 does not stand or fall together with independent claim 30. For example, dependent claim 32 recites that each of the reverse communication channels is a communication channel for carrying data from a mobile terminal to a base station and each of the forward communication channels is a communication channel for carrying data from a base station to a mobile terminal. However, there is no suggestion for these features of dependent claim 32 in combination with the other features of independent claim 30. Thus, dependent claim 32 defines patentable subject matter at least for this additional reason.

Dependent Claim 44

Dependent claim 44 depends from independent claim 30 and therefore defines patentable subject matter at least for this reason. However, dependent claim 44 contains additional features such that dependent claim 44 does not stand or fall together with independent claim 30. For

example, dependent claim 44 recites that the unique code to identify the channel as a reverse communication channel is different for each of the plurality of reverse communication channels of the one frequency channel, and the unique code to identify the channel as a forward communication channel is different for each of the plurality of forward communication channels of the one frequency channel.

Omura and Nakajima do not teach or suggest these features. That is, Omura discusses a unique code word for each user. The Office Action appears to cite Nakajima for the specific features of dependent claim 44. However, Nakajima only discloses two spectrum spreading codes for a forward and reverse channel. That is, as stated above, Nakajima does not suggest each of the plurality of reverse communication channels having a unique code and each of the plurality of forward communication channels having a unique code. Accordingly, Nakajima also does not suggest that “the unique code...is different for each of the plurality of reverse communication channels” and “the unique code...is different for each of the plurality of forward communication channels.” Thus, the combination of Omura and Nakajima does not teach or suggest all of the features of dependent claim 44 either alone or in combination with the other features of independent claim 30. Accordingly, dependent claim 44 defines patentable subject matter at least for this additional reason.

Independent Claim 34

Independent claim 34 recites a transmitter configured to transmit data on a first reverse communication channel and a receiver configured to receive data on a first forward

communication channel. Independent claim 34 further recites the first reverse communication channel, a second reverse communication channel, the first forward communication channel and a second forward communication channel utilize one frequency channel. Still further, independent claim 34 recites the first reverse communication channel having a first unique code to identify the channel as a reverse communication channel, the second reverse communication channel having a second unique code to identify the channel as a reverse communication channel, the forward communication channel having a third unique code to identify the channel as a forward communication channel and the fourth reverse communication channel having a fourth unique code to identify the channel as a forward communication channel.

For at least similar reasons as set forth above, the applied references may not be combined as alleged. Additionally, the applied references do not teach or suggest all the features of independent claim 34. Furthermore, even if combined, Omura and Nakajima still do not teach or suggest the claimed features relating to a first unique code, a second unique code, a third unique code and a fourth unique code. At best, Nakajima only discloses two spectrum spreading codes for a channel. There is no suggestion in Omura and/or Nakajima for the claimed first through fourth unique codes. The Office Action fails to provide a prior art reference suggesting the four unique codes. Accordingly, the Office Action fails to make a *prima facie* case of obviousness. Thus, independent claim 34 defines patentable subject matter.

Dependent Claim 35

Dependent claim 35 depends from independent claim 34 and therefore defines patentable subject matter at least for this reason. However, dependent claim 35 contains additional features such that dependent claim 35 does not stand or fall together with independent claim 34. For example, dependent claim 35 recites that each unique code is one of a plurality of mutually orthogonal codes.

The Office Action appears to cite Omura's col. 6, lines 28-51 for these features. However, when discussing independent claim 34, the Office Action relies on Nakajima for features relating to unique codes for each of the first and second reverse and/or forward communication channels. Neither Omura nor Nakajima relates to unique codes for first and second reverse communication channels and/or forward communication channels of one frequency channel. Accordingly, the Office Action's citation to Omura does not suggest the features of dependent claim 35. There is no suggestion for these features of dependent claim 35 either alone or in combination with the other features of independent claim 34. Thus, dependent claim 35 defines patentable subject matter at least for this additional reason.

Dependent Claim 36

Dependent claim 36 depends from independent claim 34 and therefore defines patentable subject matter at least for this reason. However, dependent claim 36 contains additional features such that dependent claim 36 does not stand or fall together with independent claim 34. For example, dependent claim 36 recites that the apparatus is a mobile terminal. However, there is

no suggestion for these features of dependent claim 36 either alone or in combination with the other features of independent claim 34. Thus, dependent claim 36 defines patentable subject matter at least for this additional reason.

Dependent Claim 46

Dependent claim 46 depends from independent claim 34 and therefore defines patentable subject matter at least for this reason. However, dependent claim 46 contains additional features such that dependent claim 46 does not stand or fall together with independent claim 34. For example, dependent claim 46 recites that each of the first unique code, the second unique code, the third unique code and the fourth code are different.

The Office Action (on page 8) appears to rely on Nakajima for the features of dependent claim 46. However, Nakajima does not disclose first through fourth unique codes being different. Rather, Nakajima explicitly describes only two spectrum spreading codes per channel. See Nakajima's col. 4, lines 8-11. There is no suggestion for this feature of dependent claim 46 either alone or in combination with independent claim 34. Thus, dependent claim 46 defines patentable subject matter at least for this additional reason.

Independent Claim 38

Independent claim 38 recites a transmitter configured to transmit data on a plurality of forward communication channels and a receiver configured to receive data on a plurality of reverse communication channels. Independent claim 38 further recites each of the plurality of

reverse communication channels and each of the plurality of forward communication channels utilize one frequency channel. Still further, each of the plurality of reverse communication channels having a unique code to identify the channel as a reverse communication channel and each of the (plurality of) forward communication channels having a unique code to identify the channel as a forward communication channel.

For at least similar reasons as set forth above, the applied references do not teach or suggest all the features of independent claim 38. That is, the applied references may not be combined as alleged in the Office Action. Further, the applied references, even if combined, do not teach or suggest the claimed transmitter and receiver in combination with the claimed plurality of forward communication channels, plurality of reverse communication channels and unique codes, as recited in independent claim 38. Thus, independent claim 38 defines patentable subject matter.

Dependent Claim 39

Dependent claim 39 depends from independent claim 38 and therefore defines patentable subject matter at least for this reason. However, dependent claim 39 contains additional features such that dependent claim 39 does not stand or fall together with independent claim 38. For example, dependent claim 39 recites each unique code is one of a plurality of mutually orthogonal codes.

The Office Action appears to cite Omura's col. 6, lines 28-51 for these features. However, when discussing independent claim 38, the Office Action relies on Nakajima for

features relating to unique codes for each of the plurality of reverse and/or forward communication channels. Neither Omura nor Nakajima relates to unique codes for each of a plurality of reverse communication channels and/or each of a plurality of forward communication channels of one frequency channel. Accordingly, the Office Action's citation to Omura does not suggest the features of dependent claim 39. There is no suggestion for these features of dependent claim 39 either alone or in combination with the other features of independent claim 38. Thus, dependent claim 39 defines patentable subject matter at least for this additional reason.

Dependent Claim 40

Dependent claim 40 depends from independent claim 38 and therefore defines patentable subject matter at least for this reason. However, dependent claim 40 contains additional features such that dependent claim 40 does not stand or fall together with independent claim 38. For example, dependent claim 40 recites that the apparatus is a base station. However, there is no suggestion for these features of dependent claim 40 either alone or in combination with the other features of independent claim 38. Thus, dependent claim 40 defines patentable subject matter at least for this additional reason.

Dependent Claim 45

Dependent claim 45 depends from independent claim 38 and therefore defines patentable subject matter at least for this reason. However, dependent claim 45 contains additional features such that dependent claim 45 does not stand or fall together with independent claim 38. For

example, dependent claim 45 recites that the unique code to identify the channel as a reverse communication channel is different for each of the plurality of reverse communication channels of the one frequency channel, and the unique code to identify the channel as a forward communication channel is different for each of the plurality of forward communication channels of the one frequency channel.

The Office Action appears to cite Nakajima for the specific features of dependent claim 45. However, Omura and Nakajima do not teach or suggest these features. That is, Omura discusses a unique code word for each user. As stated above, Nakajima only discloses two spectrum spreading codes for a forward and reverse channel. That is, Nakajima does not suggest each of the plurality of reverse communication channels having a unique code and each of the plurality of forward communication channels having a unique code. Accordingly, Nakajima also does not suggest that “the unique code...is different for each of the plurality of reverse communication channels” and “the unique code...is different for each of the plurality of forward communication channels.” Thus, the combination of Omura and Nakajima does not teach or suggest all of the features of dependent claim 45 either alone or in combination with the other features of independent claim 38. Accordingly, dependent claim 45 defines patentable subject matter at least for this additional reason.

Independent Claim 43

Independent claim 43 recites a transmitter configured to transmit data on a common channel and a receiver configured to receive data on the common channel. Independent claim 43 further recites that the common channel includes: a first reverse communication channel, a second reverse communication channel, a first forward communication channel and a second forward communication channel that utilize one common channel. Still further, independent claim 43 recites the first reverse communication channel having a first unique code to identify the channel as a reverse communication channel, the second reverse communication channel having a second unique code to identify the channel as a reverse communication channel, the forward communication channel having a third unique code to identify the channel as a forward communication channel and the fourth reverse communication channel having a fourth unique code to identify the channel as a forward communication channel.

For at least similar reasons as set forth above, the applied references do not teach or suggest all the features of independent claim 43. That is, the applied references may not be combined as alleged in the Office Action. Further, the applied references, even if combined, do not teach or suggest the claimed transmitter and receiver in combination with the claimed plurality of forward communication channels, plurality of reverse communication channels and unique codes, as recited in independent claim 43. Accordingly, independent claim 43 defines patentable subject matter at least for these reasons.

Dependent Claim 47

Dependent claim 47 depends from independent claim 43 and therefore defines patentable subject matter at least for this reason. However, dependent claim 47 contains additional features such that dependent claim 47 does not stand or fall together with independent claim 43. For example, dependent claim 47 recites each of the first unique code, the second unique code, the third unique code and the fourth unique code are different.

The Office Action (on page 8) appears to rely on Nakajima for the features of dependent claim 46. However, Nakajima does not disclose first through fourth unique codes being different. Rather, Nakajima explicitly describes only two spectrum spreading codes per channel. See Nakajima's col. 4, lines 8-11. There is no suggestion for this feature of dependent claim 47 either alone or in combination with independent claim 43. Thus, dependent claim 47 defines patentable subject matter at least for this additional reason.

CLAIMS APPENDIX

The attached Claims Appendix contains a copy of the claims involved in the appeal.

EVIDENCE APPENDIX

Applicant has not provided any evidence with this appeal and therefore an Evidence Appendix is not provided.

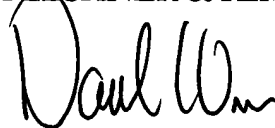
RELATED PROCEEDINGS APPENDIX

Applicant is not providing copies of related decisions and therefore a Related Proceeding Appendix is not provided.

CONCLUSION

It is respectfully submitted that the above arguments show that each of claims 30-32, 34-36, 38-40 and 43-47 are patentable over the applied references. Based at least on these reasons, it is respectfully submitted that each of claims 30-32, 34-36, 38-40 and 43-47 defines patentable subject matter. Applicant respectfully requests that the rejections of claims 30-32, 34-36, 38-40 and 43-47 set forth in the February 6, 2006 Office Action be withdrawn.

Respectfully submitted,
FLESHNER & KIM, LLP

A handwritten signature in black ink, appearing to read 'David C. Oren', written over the printed name.

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Date: July 5, 2006

CLAIMS APPENDIX

30. A system comprising:

a plurality of reverse communication channels; and

a plurality of forward communication channels, wherein:

each of the plurality of reverse communication channels and each of the plurality of forward communication channels utilize one common frequency;

each of the plurality of reverse communication channels having a unique code to identify the channel as a reverse communication channel and each of the plurality of forward communication channels having a unique code to identify the channel as a forward communication channel; and

the plurality of reverse communication channels and plurality of forward channels carry data simultaneously.

31. The system of claim 30, wherein each unique code is one of a plurality of mutually orthogonal codes.

32. The system of claim 30, wherein:

each of the reverse communication channels is a communication channel for carrying data from a mobile terminal to a base station; and

each of the forward communication channels is a communication channel for carrying data from a base station to a mobile terminal.

34. An apparatus comprising:

a transmitter configured to transmit data on a first reverse communication channel; and

a receiver configured to receive data on a first forward communication channel, wherein:

the first reverse communication channel, a second reverse communication channel, the first forward communication channel and a second forward communication channel utilize one frequency channel;

the first reverse communication channel having a first unique code to identify the channel as a reverse communication channel, the second reverse communication channel having a second unique code to identify the channel as a reverse communication channel, the forward communication channel having a third unique code to identify the channel as a forward communication channel and the fourth reverse communication channel having a fourth unique code to identify the channel as a forward communication channel; and

the first reverse communication channel, the second reverse communication channel, the first forward communication channel and the fourth forward communication channel are configured to carry data simultaneously.

35. The apparatus of claim 34, wherein each unique code is one of a plurality of mutually orthogonal codes.

36. The apparatus of claim 34, wherein the apparatus is a mobile terminal.

38. An apparatus comprising:
a transmitter configured to transmit data on a plurality of forward communication channels; and
a receiver configured to receive data on a plurality of reverse communication channels, wherein:

each of the plurality of reverse communication channels and each of the plurality of forward communication channels utilize one frequency channel;

each of the plurality of reverse communication channels having a unique code to identify the channel as a reverse communication channel and each of the forward communication channels having a unique code to identify the channel as a forward communication channel; and

the reverse communication channels and the forward communication channels are configured to carry data simultaneously.

39. The apparatus of claim 38, wherein each unique code is one of a plurality of mutually orthogonal codes.

40. The apparatus of claim 38, wherein the apparatus is a base station.

43. An apparatus comprising:
a transmitter configured to transmit data on a common channel; and
a receiver configured to receive data on the common channel, wherein the common channel includes:

a first reverse communication channel, a second reverse communication channel, a first forward communication channel and a second forward communication channel that utilize one common channel;

the first reverse communication channel having a first unique code to identify the channel as a reverse communication channel, the second reverse communication channel having a second unique code to identify the channel as a reverse communication channel, the forward communication channel having a third unique code to identify the channel as a forward communication channel and the fourth reverse communication channel having a fourth unique code to identify the channel as a forward communication channel; and

the first reverse communication channel, the second reverse communication channel, the first forward communication channel and the fourth forward communication channel are configured to carry data simultaneously.

44. The system of claim 30, wherein the unique code to identify the channel as a reverse communication channel is different for each of the plurality of reverse communication channels of the one frequency channel, and the unique code to identify the channel as a forward communication channel is different for each of the plurality of forward communication channels of the one frequency channel.

45. The system of claim 38, wherein the unique code to identify the channel as a reverse communication channel is different for each of the plurality of reverse communication channels of the one frequency channel, and the unique code to identify the channel as a forward communication channel is different for each of the plurality of forward communication channels of the one frequency channel.

46. The apparatus of claim 34, wherein each of the first unique code, the second unique code, the third unique code and the fourth unique code are different.

47. The apparatus of claim 43, wherein each of the first unique code, the second unique code, the third unique code and the fourth unique code are different.